

Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala  
 1 5 10 15  
 Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro  
 20 25 30  
 Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val  
 35 40 45  
 Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val  
 50 55 60  
 Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln  
 65 70 75 80  
 Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln  
 85 90 95  
 Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala  
 100 105 110  
 Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro  
 115 120 125  
 Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr  
 130 135 140  
 Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser  
 145 150 155 160  
 Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr  
 165 170 175  
 Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr  
 180 185 190  
 Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe  
 195 200 205  
 Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys  
 210 215 220  
 Ser Leu Ser Leu Ser Pro Gly Lys  
 225 230

**FIGURE 1**

Met	Asn	Lys	Trp	Leu	Cys	Cys	Ala	Leu	Leu	Val	Leu	Leu	Asp	Ile	Ile	
1				5					10					15		
Glu	Trp	Thr	Thr	Gln	Glu	Thr	Leu	Pro	Pro	Lys	Tyr	Leu	His	Tyr	Asp	
		20						25					30			
Pro	Glu	Thr	Gly	His	Gln	Leu	Leu	Cys	Asp	Lys	Cys	Ala	Pro	Gly	Thr	
		35					40					45				
Tyr	Leu	Lys	Gln	His	Cys	Thr	Val	Arg	Arg	Lys	Thr	Leu	Cys	Val	Pro	
	50					55					60					
Cys	Pro	Asp	His	Ser	Tyr	Thr	Asp	Ser	Trp	His	Thr	Ser	Asp	Glu	Cys	
65					70					75					80	
Val	Tyr	Cys	Ser	Pro	Val	Cys	Lys	Glu	Leu	Gln	Ser	Val	Lys	Gln	Glu	
				85					90					95		
Cys	Asn	Arg	Thr	His	Asn	Arg	Val	Cys	Glu	Cys	Glu	Glu	Gly	Arg	Tyr	
			100					105					110			
Leu	Glu	Ile	Glu	Phe	Cys	Leu	Lys	His	Arg	Ser	Cys	Pro	Pro	Gly	Ser	
		115					120					125				
Gly	Val	Val	Gln	Ala	Gly	Thr	Pro	Glu	Arg	Asn	Thr	Val	Cys	Lys	Lys	
	130					135					140					
Cys	Pro	Asp	Gly	Phe	Phe	Ser	Gly	Glu	Thr	Ser	Ser	Lys	Ala	Pro	Cys	
145					150					155					160	
Ile	Lys	His	Thr	Asn	Cys	Ser	Thr	Phe	Gly	Leu	Leu	Leu	Ile	Gln	Lys	
				165					170					175		
Gly	Asn	Ala	Thr	His	Asp	Asn	Val	Cys	Ser	Gly	Asn	Arg	Glu	Ala	Thr	
			180					185					190			
Gln	Lys	Cys	Gly	Ile	Asp	Val	Thr	Leu	Cys	Glu	Glu	Ala	Phe	Phe	Arg	
		195					200					205				
Phe	Ala	Val	Pro	Thr	Lys	Ile	Ile	Pro	Asn	Trp	Leu	Ser	Val	Leu	Val	
	210					215					220					
Asp	Ser	Leu	Pro	Gly	Thr	Lys	Val	Asn	Ala	Glu	Ser	Val	Glu	Arg	Ile	
225					230					235					240	
Lys	Arg	Arg	His	Ser	Ser	Gln	Glu	Gln	Thr	Phe	Gln	Leu	Leu	Lys	Leu	
				245					250					255		
Trp	Lys	His	Gln	Asn	Arg	Asp	Gln	Glu	Met	Val	Lys	Lys	Ile	Ile	Gln	
			260					265					270			
Asp	Ile	Asp	Leu	Cys	Glu	Ser	Ser	Val	Gln	Arg	His	Leu	Gly	His	Ser	
		275					280					285				

**FIGURE 2**

Asn	Leu	Thr	Thr	Glu	Gln	Leu	Leu	Ala	Leu	Met	Glu	Ser	Leu	Pro	Gly
	290					295					300				
Lys	Lys	Ile	Ser	Pro	Glu	Glu	Ile	Glu	Arg	Thr	Arg	Lys	Thr	Cys	Lys
305					310					315					320
Ser	Ser	Glu	Gln	Leu	Leu	Lys	Leu	Leu	Ser	Leu	Trp	Arg	Ile	Lys	Asn
				325					330					335	
Gly	Asp	Gln	Asp	Thr	Leu	Lys	Gly	Leu	Met	Tyr	Ala	Leu	Lys	His	Leu
			340					345					350		
Lys	Thr	Ser	His	Phe	Pro	Lys	Thr	Val	Thr	His	Ser	Leu	Arg	Lys	Thr
		355					360					365			
Met	Arg	Phe	Leu	His	Ser	Phe	Thr	Met	Tyr	Arg	Leu	Tyr	Gln	Lys	Leu
	370					375					380				
Phe	Leu	Glu	Met	Ile	Gly	Asn	Gln	Val	Gln	Ser	Val	Lys	Ile	Ser	Cys
385					390					395					400
Leu															

**FIGURE 2**

Glu	Thr	Phe	Pro	Pro	Lys	Tyr	Leu	His	Tyr	Asp	Glu	Glu	Thr	Ser	His
1				5					10					15	
Gln	Leu	Leu	Cys	Asp	Lys	Cys	Pro	Pro	Gly	Thr	Tyr	Leu	Lys	Gln	His
			20					25					30		
Cys	Thr	Ala	Lys	Trp	Lys	Thr	Val	Cys	Ala	Pro	Cys	Pro	Asp	His	Tyr
		35					40					45			
Tyr	Thr	Asp	Ser	Trp	His	Thr	Ser	Asp	Glu	Cys	Leu	Tyr	Cys	Ser	Pro
	50					55					60				
Val	Cys	Lys	Glu	Leu	Gln	Tyr	Val	Lys	Gln	Glu	Cys	Asn	Arg	Thr	His
65					70					75					80
Asn	Arg	Val	Cys	Glu	Cys	Lys	Glu	Gly	Arg	Tyr	Leu	Glu	Ile	Glu	Phe
				85					90					95	
Cys	Leu	Lys	His	Arg	Ser	Cys	Pro	Pro	Gly	Phe	Gly	Val	Val	Gln	Ala
			100					105					110		
Gly	Thr	Pro	Glu	Arg	Asn	Thr	Val	Cys	Lys	Arg	Cys	Pro	Asp	Gly	Phe
		115					120					125			
Phe	Ser	Asn	Glu	Thr	Ser	Ser	Lys	Ala	Pro	Cys	Arg	Lys	His	Thr	Asn
	130					135					140				
Cys	Ser	Val	Phe	Gly	Leu	Leu	Leu	Thr	Gln	Lys	Gly	Asn	Ala	Thr	His
145					150					155					160
Asp	Asn	Ile	Cys	Ser	Gly	Asn	Ser	Glu	Ser	Thr	Gln	Lys	Ala	Ala	Ala
				165					170					175	
Glu	Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala
			180					185					190		
Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro
		195					200					205			
Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val
	210					215					220				
Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val
225					230					235					240
Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln
				245					250					255	
Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln
			260					265					270		
Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala
		275					280					285			

**FIGURE 3**



Glu 1	Thr	Phe	Pro	Pro 5	Lys	Tyr	Leu	His	Tyr 10	Asp	Glu	Glu	Thr	Ser 15	His
Gln	Leu	Leu	Cys 20	Asp	Lys	Cys	Pro	Pro 25	Gly	Thr	Tyr	Leu	Lys 30	Gln	His
Cys	Thr	Ala 35	Lys	Trp	Lys	Thr	Val 40	Cys	Ala	Pro	Cys	Pro 45	Asp	His	Tyr
Tyr	Thr 50	Asp	Ser	Trp	His	Thr 55	Ser	Asp	Glu	Cys	Leu 60	Tyr	Cys	Ser	Pro
Val 65	Cys	Lys	Glu	Leu	Gln 70	Tyr	Val	Lys	Gln	Glu 75	Cys	Asn	Arg	Thr	His 80
Asn	Arg	Val	Cys	Glu 85	Cys	Lys	Glu	Gly	Arg 90	Tyr	Leu	Glu	Ile	Glu 95	Phe
Cys	Leu	Lys	His 100	Arg	Ser	Cys	Pro	Pro 105	Gly	Phe	Gly	Val	Val 110	Gln	Ala
Gly	Thr	Pro 115	Glu	Arg	Asn	Thr	Val 120	Cys	Lys	Arg	Cys	Pro 125	Asp	Gly	Phe
Phe	Ser 130	Asn	Glu	Thr	Ser	Ser 135	Lys	Ala	Pro	Cys	Arg 140	Lys	His	Thr	Asn
Cys 145	Ser	Val	Phe	Gly	Leu 150	Leu	Leu	Thr	Gln	Lys 155	Gly	Asn	Ala	Thr	His 160
Asp	Asn	Ile	Cys	Ser 165	Gly	Asn	Ser	Glu	Ser 170	Thr	Gln	Lys	Cys	Gly 175	Ile
Asp	Val	Thr	Ala 180	Ala	Ala	Glu	Pro	Lys 185	Ser	Cys	Asp	Lys	Thr 190	His	Thr
Cys	Pro	Pro 195	Cys	Pro	Ala	Pro	Glu 200	Leu	Leu	Gly	Gly	Pro 205	Ser	Val	Phe
Leu	Phe 210	Pro	Pro	Lys	Pro	Lys 215	Asp	Thr	Leu	Met	Ile 220	Ser	Arg	Thr	Pro
Glu 225	Val	Thr	Cys	Val	Val 230	Val	Asp	Val	Ser	His 235	Glu	Asp	Pro	Glu	Val 240
Lys	Phe	Asn	Trp	Tyr 245	Val	Asp	Gly	Val	Glu 250	Val	His	Asn	Ala	Lys 255	Thr
Lys	Pro	Arg	Glu 260	Glu	Gln	Tyr	Asn	Ser 265	Thr	Tyr	Arg	Val	Val 270	Ser	Val
Leu	Thr	Val 275	Leu	His	Gln	Asp	Trp 280	Leu	Asn	Gly	Lys	Glu 285	Tyr	Lys	Cys

### FIGURE 4

Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser
	290					295					300				
Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro
305					310					315					320
Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val
				325					330					335	
Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly
			340					345					350		
Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp
		355					360					365			
Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp
	370					375					380				
Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His
385					390					395					400
Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly			
				405					410						

**FIGURE 4**

Glu	Thr	Phe	Pro	Pro	Lys	Tyr	Leu	His	Tyr	Asp	Glu	Glu	Thr	Ser	His
1				5					10					15	
Gln	Leu	Leu	Cys	Asp	Lys	Cys	Pro	Pro	Gly	Thr	Tyr	Leu	Lys	Gln	His
			20					25					30		
Cys	Thr	Ala	Lys	Trp	Lys	Thr	Val	Cys	Ala	Pro	Cys	Pro	Asp	His	Tyr
		35					40					45			
Tyr	Thr	Asp	Ser	Trp	His	Thr	Ser	Asp	Glu	Cys	Leu	Tyr	Cys	Ser	Pro
	50					55					60				
Val	Cys	Lys	Glu	Leu	Gln	Tyr	Val	Lys	Gln	Glu	Cys	Asn	Arg	Thr	His
65					70					75					80
Asn	Arg	Val	Cys	Glu	Cys	Lys	Glu	Gly	Arg	Tyr	Leu	Glu	Ile	Glu	Phe
				85					90					95	
Cys	Leu	Lys	His	Arg	Ser	Cys	Pro	Pro	Gly	Phe	Gly	Val	Val	Gln	Ala
			100					105					110		
Gly	Thr	Pro	Glu	Arg	Asn	Thr	Val	Cys	Lys	Arg	Cys	Pro	Asp	Gly	Phe
		115					120					125			
Phe	Ser	Asn	Glu	Thr	Ser	Ser	Lys	Ala	Pro	Cys	Arg	Lys	His	Thr	Asn
	130					135					140				
Cys	Ser	Val	Phe	Gly	Leu	Leu	Leu	Thr	Gln	Lys	Gly	Asn	Ala	Thr	His
145					150					155					160
Asp	Asn	Ile	Cys	Ser	Gly	Asn	Ser	Glu	Ser	Thr	Gln	Lys	Val	Asp	Lys
				165					170					175	
Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro
			180					185					190		
Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser
		195					200					205			
Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp
	210					215					220				
Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn
225					230					235					240
Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val
				245					250					255	
Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu
			260					265					270		
Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys
		275					280					285			

**FIGURE 5**









Glu	Thr	Phe	Pro	Pro	Lys	Tyr	Leu	His	Tyr	Asp	Glu	Glu	Thr	Ser	His
1				5					10					15	
Gln	Leu	Leu	Cys	Asp	Lys	Cys	Pro	Pro	Gly	Thr	Tyr	Leu	Lys	Gln	His
			20					25					30		
Cys	Thr	Ala	Lys	Trp	Lys	Thr	Val	Cys	Ala	Pro	Cys	Pro	Asp	His	Tyr
		35					40					45			
Tyr	Thr	Asp	Ser	Trp	His	Thr	Ser	Asp	Glu	Cys	Leu	Tyr	Cys	Ser	Pro
	50					55					60				
Val	Cys	Lys	Glu	Leu	Gln	Tyr	Val	Lys	Gln	Glu	Cys	Asn	Arg	Thr	His
65					70					75					80
Asn	Arg	Val	Cys	Glu	Cys	Lys	Glu	Gly	Arg	Tyr	Leu	Glu	Ile	Glu	Phe
				85					90					95	
Cys	Leu	Lys	His	Arg	Ser	Cys	Pro	Pro	Gly	Phe	Gly	Val	Val	Gln	Ala
			100					105					110		
Gly	Thr	Pro	Glu	Arg	Asn	Thr	Val	Cys	Lys	Arg	Cys	Pro	Asp	Gly	Phe
		115					120					125			
Phe	Ser	Asn	Glu	Thr	Ser	Ser	Lys	Ala	Pro	Cys	Arg	Lys	His	Thr	Asn
	130					135					140				
Cys	Ser	Val	Phe	Gly	Leu	Leu	Leu	Thr	Gln	Lys	Gly	Asn	Ala	Thr	His
145					150					155					160
Asp	Asn	Ile	Cys	Ser	Gly	Asn	Ser	Glu	Ser	Thr	Gln	Lys	Ser	Gly	Gly
				165					170					175	
Gly	Gly	Gly	Gly	Gly	Gly	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu
			180					185					190		
Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr
		195					200					205			
Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val
	210					215					220				
Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val
225					230					235					240
Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser
				245					250					255	
Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu
			260					265					270		
Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala
		275					280					285			

**FIGURE 7**



Met 1	Asp	Lys	Thr	His 5	Thr	Cys	Pro	Pro	Cys 10	Pro	Ala	Pro	Glu	Leu 15	Leu
Gly	Gly	Pro	Ser 20	Val	Phe	Leu	Phe	Pro 25	Pro	Lys	Pro	Lys	Asp 30	Thr	Leu
Met	Ile	Ser 35	Arg	Thr	Pro	Glu	Val 40	Thr	Cys	Val	Val	Val 45	Asp	Val	Ser
His	Glu 50	Asp	Pro	Glu	Val	Lys 55	Phe	Asn	Trp	Tyr	Val 60	Asp	Gly	Val	Glu
Val 65	His	Asn	Ala	Lys	Thr 70	Lys	Pro	Arg	Glu	Glu 75	Gln	Tyr	Asn	Ser	Thr 80
Tyr	Arg	Val	Val	Ser 85	Val	Leu	Thr	Val	Leu 90	His	Gln	Asp	Trp	Leu 95	Asn
Gly	Lys	Glu	Tyr 100	Lys	Cys	Lys	Val	Ser 105	Asn	Lys	Ala	Leu	Pro 110	Ala	Pro
Ile	Glu 115	Lys	Thr	Ile	Ser	Lys	Ala 120	Lys	Gly	Gln	Pro 125	Arg	Glu	Pro	Gln
Val	Tyr 130	Thr	Leu	Pro	Pro	Ser 135	Arg	Asp	Glu	Leu	Thr 140	Lys	Asn	Gln	Val
Ser 145	Leu	Thr	Cys	Leu	Val 150	Lys	Gly	Phe	Tyr	Pro 155	Ser	Asp	Ile	Ala	Val 160
Glu	Trp	Glu	Ser	Asn 165	Gly	Gln	Pro	Glu	Asn 170	Asn	Tyr	Lys	Thr	Thr 175	Pro
Pro	Val	Leu	Asp 180	Ser	Asp	Gly	Ser	Phe 185	Phe	Leu	Tyr	Ser	Lys 190	Leu	Thr
Val	Asp	Lys 195	Ser	Arg	Trp	Gln	Gln 200	Gly	Asn	Val	Phe	Ser 205	Cys	Ser	Val
Met	His 210	Glu	Ala	Leu	His	Asn 215	His	Tyr	Thr	Gln	Lys 220	Ser	Leu	Ser	Leu
Ser 225	Pro	Gly	Lys	Glu	Thr 230	Phe	Pro	Pro	Lys	Tyr 235	Leu	His	Tyr	Asp	Glu 240
Glu	Thr	Ser	His	Gln 245	Leu	Leu	Cys	Asp	Lys 250	Cys	Pro	Pro	Gly	Thr 255	Tyr
Leu	Lys	Gln	His 260	Cys	Thr	Ala	Lys	Trp 265	Lys	Thr	Val	Cys	Ala 270	Pro	Cys
Pro	Asp	His 275	Tyr	Tyr	Thr	Asp	Ser 280	Trp	His	Thr	Ser	Asp 285	Glu	Cys	Leu

**FIGURE 8**

